

**From:** [Coltrain, Katrina](#)  
**To:** [Teri Mcmillan \(tmcmillan@eaest.com\)](#); [Christina Radu \(cradu@eaest.com\)](#)  
**Subject:** Draft Comments on the Wilcox TO 128 - Sampling and Analysis Plan--initial thoughts in preparation for the team conference call 5/13  
**Date:** Thursday, May 12, 2016 3:25:00 PM  
**Attachments:** [DraftFigures\\_012016reducedsize 2.pdf](#)

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Teri/Christina, please find listed below some thoughts and comments thus far. I have not completed a full review of the entire document, but thought this may provide some insight into my thoughts prior to the call tomorrow.

1. Distribution list: Please include Todd Downham with ODEQ.
2. 1.1.2, paragraph 1: Also make any necessary revision to Appendix A.
  - a. the site boundaries have expanded just a bit since the original acreage was estimated. The site sits somewhere between 140 to 150 acres.
  - b. last paragraph: Please revise the first sentence to include the following: Properties where refinery waste is present at the surface are fenced and locked to deter trespassing and potential contact with the refinery waste.
3. Table 2, Sept 2010 and 2011 Reports: Summary has some grammatical errors.
4. Table 2, 2016: The December event also included GRO/ORO/DRO data.
5. 1.1.5:
  - a. Please revise the second sentence to 'Waste associated with crude oil refining MAY include the following:..' Not all of the listed waste sources have been identified at the site.
  - b. Please include a summary of the Lorraine Process area including the LIF data and the presence or absence of the LNAPL.
6. Sanborn Maps: please include these in the report.
7. 1.1.5.2:
  - a. COPC list includes TPH. Why is this included? Also, refer to Section 2.2 and associated tables that include TPH.
  - b. It is stated that 'tank bottoms' are present. To my knowledge we have no direct information to classify or define these as such. Please refer to these as an asphalt or tar-like hydrocarbon material.
  - c. From previous discussions, the PCB/Pesticides and Dioxins/Furans were to be a limited subset of the samples collected from the Wilcox Process Area and the Lorraine Process area for samples collected from 0-6". This is summarized in Sections 1.3.2.1 and 2.2.
  - d. For some of the following sections, data from previous reports were not included as part of the historic summary and are noted below. Although these are not discussed, I do not believe that they would alter the planned actions presented in the report. At this point, it would not be beneficial to spend time reviewing and revising these sections for the small number of samples given that the final planned actions would not change.
    - i. Tank 7: There was a sample collected from this area during the 2011 ODEQ ESI. Lead detected (122 mg/kg). No organics reported.
    - ii. Tank 8: There was a sample collected from this area during the 1997 ESI.
    - iii. Tank 9: There was a sample collected from this area during the 2011 ODEQ ESI. Multiple organics detected.
    - iv. Tank 10: Samples were collected from this area during the 1997 ESI and the 2011 ODEQ ESI. Pyrene (3300 mg/kg) and Benzo(a)anthracene

- (1800 mg/kg) reported.
- v. Tank 11:
  - 1. A sample was collected from this area during the 1997 ESI.
  - 2. Previously the presence of a tar-like material was observed at the surface.
- vi. Tank 12: There was a sample collected from this area during the 2011 ODEQ ESI. Copper (6.10 mg/kg) detected. Multiple organics detected.
- vii. Tank 13: There was a sample collected from this area during the 2011 ODEQ ESI. No metals reported. Pyrene (490 mg/kg).
- viii. Tanks 14-17: There was a sample collected from this area during the 2011 ODEQ ESI. Copper (5.6 mg/kg), Lead (2320 mg/kg), nickel (153 mg/kg) detected.
- ix. Pond 2: Samples were collected from this area during the 1997 ESI and the 2011 ODEQ ESI (sample descriptions are inconsistent with map).
- x. Pond 1: Samples were collected from this area during the 1997 ESI
- xi. Tank 20-21: There was a sample collected from this area during the 2011 ODEQ ESI. Copper (78.2 mg/kg) and lead (1560 mg/kg) detected. No organics reported.
- xii. Tank 36: Potentially, SS-08 from the 2011 ODEQ ESI is in this area; however, sample descriptions are inconsistent with map.
- e. Former Tank 5:
  - i. The ROST LIF did detect fluorescence in the area of the tank.
  - ii. Figure 6 will also need to be revised to include the LIF signature.
  - iii. The property owner confirmed that both ponds that are present on the property were dug by him in early 2000's.
  - iv. It should be noted that during the residential sampling an oil/sludge was visually observed in the area of TF-05-07 at 1ft bgs and observed in the area of TF-05-08 at 1.5 ft bgs.
- f. Tank 10:
  - i. We are not certain that a tank existed here. Perhaps, we just call it Tank Farm Area 10.
  - ii. Waste characterization of the tar-sludge is also needed.
- g. Please include a summary of the Additive area and the former ponds located between Tanks 11 and 12.
- 8. 1.1.5.6
  - a. Pond 2: Please describe the LIF results.
  - b. Pond 1:
    - i. It should be noted that during a removal action/residential sampling two samples were collected from the surface within the Pond boundary. PAHs were detected above the residential soil screening level.
    - ii. Test pits were also dug around Pond 1 during the September Geophysics event.
- 9. 1.2.2.1: Also, refer to section 2.3.3.1.
  - a. Number 3: The North Tank Farm and the Loading Dock Area will most likely require some clearing.
  - b. Number 4(f): ODOT is still trying to determine how to proceed with addressing the soil that was removed from the site and placed in around the bridge. We know from discussions with the operator that an oil-substance was encountered

at about 2-3 ft. Suggest that any 'digging' be limited to hand augurs and that this action be coordinated with ODOT. In addition, no oil-material is visible at the surface.

- c. Number 4(g): the field is located north of the East Tank Farm, not within it.
  - d. Number 4(h) and 7: ODEQ has done this quarterly for the past year. Review of the data and confirmation from the risk assessor will dictate if additional sampling is necessary.
  - e. Number 5(e): Note that the West and East Tributaries are wet year round.
  - f. Number 7(a): ODEQ has done the well sampling and continues to do so.
  - g. Number 7(b) and (c) are the same. One well is 'active' the other is questionable.
  - h. Number 7(d): North Tank Farm resident well is sampled by ODEQ.
  - i. Number 7(e): to my knowledge there is just the one well south of the parsonage that can be used to gather any information related to the LNAPL.
10. 1.2.2.2: Please clarify for Number 5 that the expansion of the soil gas investigation would include the residential properties in the East Tank Farm and the property on the North Tank Farm.
11. 1.2.2.3: move the biological sampling to phase 2.
12. 1.3.2.1: Why are TPH included? These cannot be used in a risk assessment. The detailed list of VOCs and SVOCs will capture the components that fall under the TPH analysis. What PSQs will these answer?
13. 1.3.2.2: Please include interested tribes as one of the stakeholders: Cherokee Nation, Muscogee (Creek) Nation, and Sac and Fox Nation.
14. 1.3.3.1; 1.3.3.3, and 1.3.6.2: Some additional site Questions/decision rules.
- a. Is there a ground water aquifer at the site, and if present what is the classification and what is the nature and extent of contamination?
    - i. Confirm the presence or absence of ground water contamination to determine how and what future actions (e.g., investigation, delineation, characterization) are necessary to characterize the ground water; otherwise, consider no further action.
    - ii. Characterize and delineate contamination in ground water to determine whether COPCs present unacceptable human health/ecological risk requiring the evaluation of options and technologies to support future actions (e.g., removal, remediation, exposure restriction, migration mitigation or in-place containment); otherwise, consider no further action.
    - iii. Confirm the presence or absence of ground water contamination discharge to the surface water to determine how and what future actions (e.g., investigation, delineation, characterization) are necessary to characterize this interaction; otherwise, consider no further action.
    - iv. Characterize and delineate ground water discharge to surface water to determine whether COPCs present unacceptable human health/ecological risk requiring the evaluation of options and technologies to support future actions (e.g., removal, remediation, exposure restriction, migration mitigation or in-place containment); otherwise, consider no further action.
  - b. Is there LNAPL present and what is the extent and volume?
    - i. Confirm the presence or absence of LNAPL to determine whether future actions (e.g., removal, remediation, exposure restriction, migration mitigation or in-place containment) are necessary; otherwise,

- consider no further action.
    - ii. Characterize and delineate the LNAPL to determine whether COPCs present unacceptable human health/ecological risk requiring the evaluation of options and technologies to support future actions (e.g., removal, remediation, exposure restriction, migration mitigation or in-place containment); otherwise, consider no further action.
  - c. Is the refusal layer continuous across the site and does it provide a barrier to downward contaminant migration?
    - i. Confirm the presence or absence of a continuous refusal layer at depth to determine whether future actions (e.g., investigation, delineation, characterization) are necessary; otherwise, consider no further action.
    - ii. Characterize and delineate the refusal layer to determine whether it provides a barrier to downward contaminant migration and whether future actions (e.g., investigation, delineation, characterization) are necessary; otherwise, consider no further action.
  - d. What is the extent and volume of contaminated medium in the Additives area?
    - i. Characterize and delineate the Additives Area to determine whether COPCs present unacceptable human health/ecological risk requiring the evaluation of options and technologies to support future actions (e.g., removal, remediation, exposure restriction, migration mitigation or in-place containment); otherwise, consider no further action.
15. 1.3.4.1: The vapor intrusion COPC exposure comparison for Air/soil gas should also include the residential scenario.
  16. 1.3.5.1, paragraph 2: The soil distribution of interest also includes information down to the refusal layer should ground water not be present.
  17. 1.3.6.1: Please include a discussion on how to evaluate non-detect results and contaminants with detection limits above screening levels.
  18. 1.3.7.2: Please include a discussion on the site's tolerable limits for decision error. What are the statistical performance and acceptance criteria, how were these established, and what do they mean in terms of making decision errors? In addition, how does the criteria relate to the sample design and the number of samples needed?
  19. 1.3.8: Please refer the reader to Chapter 2 for details related to the sampling process and design.
  20. 1.6.1: Please also include the following: specific volumes of materials used to plug holes, wells, etc, conditions at time of sampling that could affect final data results (rain that could alter moisture content, surface runoff, core recovery, use of generators, leaking hydraulic fluids, equipment exhaust, etc) and GPS data.
  21. 2.1: Please update the list of PSQs and decision statement to include all PSQs listed in Section 1.3.3.1 and decision statement listed in 1.3.3.3. In addition refer to comment 13.
  22. 2.2 Analyses:
    - a. please include asbestos.
    - b. Please identify the parameters for ground water.
    - c. Hex Chromium: Verify with the risk assessor that 5% soil samples in the process area is not needed and that 5% ground water analysis is not needed.
    - d. PCB/Pesticides/ dioxin/furan: Verify with risk assessor that 5% not needed for ground water, sediment, and surface water.
    - e. Additional Testing: Verify with Risk assessors that these are needed up front or are parameters needed should toxicity testing be needed. Refer to Section

2.3.5.2.

- f. Surface water: verify with risk assessor that total metals is not needed.

23. 2.3 Sampling Methodology:

- a. please include that each location will have GPS data collected.
- b. It is difficult to discern what is considered under Mobilizations 1, 2, and 3. Please revise sections so that it is clear what actions will fall under each mobilization. In addition, please also clarify associated tables and/or figures.

24. 2.3.2: The north Tank Farm may also require some clearing. See comment 9 and Section 1.2.2.1.

25. 2.3.3.1: refer to comment 9 and Section 1.2.2.1.

26. 2.3.4.1:

- a. Table 7 indicates that hollow-stem will be used to investigate the North Tank Farm. This area is believed to have shallow bedrock throughout which may indicate that the use of hollow-stem is not practical.
- b. Figure 7: there is what appears to be a separation pond north of the designated tank location NTF-SB-01. This area will need to be part of the site reconnaissance and included in the sample design (2.3.4.8). Refer to the 1956 aerial for further details.

27. 2.3.4.4: Houston/CLP will not meet rapid turnaround times. Please remove this bullet.

28. 2.3.4.7:

- a. Suggest the spacing be 200ft.
- b. Drainages are present on Lorraine and Wilcox near the vicinity of the railroad. These drainage areas and sample locations will need to be identified in the field and mapped.
- c. In addition, there are drainage pathways within the North Tank Farm. These drainage areas and sample locations will need to be identified in the field and mapped.
- d. Also, the Loading dock area has the potential for drainage to the West Tributary. These drainage areas and sample locations will need to be identified in the field and mapped.
- e. Assuming these are only inundated during rain, then should the sampling depths be greater than 0.5'?

29. 2.3.4.8: There is a tar-material located within the utility right-of-way west of Lorraine.

30. 2.3.4.9:

- a. It is stated that a private lab will perform the analyses. Please explain why Houston/CLP will not be used. Since follow-up work will be conducted during the second mobilization there is no rush for the data.
- b. I am confused by the text. Paragraph 4 after the numbered list indicates that vertical delineation will be done down to 10ft. Then paragraph 7 indicates that vertical delineation will be done during a subsequent mobilization.

31. 2.3.5.3

- a. Suggest that samples designated for Pond6 and down gradient to Sand Creek as well as Sand Creek samples designated as SC-SW/SD-03 and lower be pushed to mobilization 2. Should the other samples indicate further investigation is necessary then these locations can be sampled.
- b. Number 2-Bridge: there is no oil-substance visible at the surface. Coordination with ODOT will be necessary. ODOT continues to evaluate how to proceed with the bridge construction and management of soil taken from the Wilcox site.
- c. Number 6-Site Ponds: The description does not match figure 13. Ponds 1 and 6

are stream flow ponds located along the West and East Tributary, respectively. Ponds 2, 3, 4, and 5 are isolated. Not sure about Pond 7. There is no Pond 8 on the map. The property owner indicated that both Ponds 3 and 4 were dug by him in the mid-2000's.

32. 2.3.6:

- a. The sampling completed by ODEQ has been in accordance with the safe drinking water act and associated sampling methodologies. The text will need to be revised to reflect this work. Based on the data collected by ODEQ, no contamination above SDWA levels is present in the GW.
- b. Sampling should focus on those contaminants not addressed by ODEQ sampling.
- c. Sampling should be coordinated with ODEQ and with ODEQ present. Sample protocols should be consistent with that used by ODEQ.

33. 2.3.7:

- a. Figure 15-please remove the house near East Tank 11.
- b. It is my understanding that we will need to do a survey with the resident to identify any chemicals in use or in the area that may interfere with the sampling as well as an appropriate location for the sub-slab sample and indoor air sample. Also, we will need to confirm this with the Wilcox residence owner, but it looked as if the property was occupied during our last site visit. This may add a layer of coordination and complexity for the sampling.

34. 2.15: it is stated that 100% validation will be done on non-CLP/Houston provided data. Why 100% and not some lower percentage such as 20%?

35. Appendix A:

- a. 3.1, paragraphs 3 and 4 and Section 3.7: The East and West Tributaries contain water at all times of the year. Classification as intermittent within the site boundaries may not be appropriate.
- b. 3.1, paragraph 4:
  - i. It is stated that several old building ruins are located in the East Tank Farm. This is not correct. There are no refinery structures remaining in this portion of the site.
  - ii. There are 5 ponds. One of these may dry out in the heat of the summer.
- c. 7.4: It is possible that property may also be sold for commercial/industrial use. This scenario should also be considered. In addition, this section has typos that need to be corrected.
- d. HH CSM:
  - i. Current/future resident:
    1. The pathway for surface water and sediment are complete. Does the trespasser scenario cover any exposure that the resident may have regarding surface water and sediment? Same question applies to construction worker.
    2. The pathway for subsurface fugitive dust inhalation. Is there fugitive dust generated by subsurface soil? Would this exposure route be covered by surface soil?
    3. Text in last paragraph references the trespasser rather than the resident.
  - ii. Construction worker: the pathway for ground water inhalation and direct contact uptake are complete. Are these also 'not significant'? I would expect that the construction worker would not be working at



depth if the hole is filled with water, but then the water would have to be managed for work to proceed.

e. ECO CSM

i. 8.3.1

1. Piscivorous wildlife: is it appropriate to use the river otter for this site? Is there another receptor that is more realistic given the site circumstances?

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**From:** McMillan, Teresa [mailto:tmcmillan@eaest.com]  
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**Subject:** Wilcox TO 128 - Sampling and Analysis Plan

Katina,

The Sampling & Analysis Plan for the Wilcox Oil Company Superfund Site RI/FS has been uploaded to EA's SharePoint site.

When you log into the SharePoint site, the Wilcox Oil library will be listed at the bottom of the left side bar or you can go directly to the library at

<http://epa6rac.eaest.com/Wilcox%20Oil/Forms/AllItems.aspx>

Your user ID and password:

User ID = (b) (6)  
Password (b) (6)

As requested by Mr. Todd Downham, EA is also shipping one hard copy and one electronic copy on CD to ODEQ.

If you have any questions please let me know.

Thanks,

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